

**REMARKS**

With entry of this amendment, Claim 6 has been cancelled and Claims 1-5 and 7-52 are pending in this application. Applicants have amended Claim 1 to recite a process for liquefying starch comprising the steps of contacting a thermostable, acid stable alpha-amylase obtained by culturing *Bacillus acidocaldarius* with an aqueous slurry or solution of the starch having a pH as low as 3.0, the contacting occurring at 90-155° C and producing a liquefact having a pH of about 4.0 to 4.5 and DE of about 10-12 within 60 to 75 minutes after adding the amylase. Applicants have amended Claim 7 to correct the dependency resulting from the cancellation of Claim 6. Applicants have also amended claims 17, 33, 43, 44, 45 and 52 to recite the liquefact as having a DE of 10-12 "within 60 to 75 minutes after adding the amylase". Claim 52 was amended to recite "*Bacillus acidocardarius*" instead of "*Bacillus caldarius*". Support in the specification is at least found in originally filed Claim 6; page 12 lines 11 to 29; and Figure 4. Applicant submits no new matter has been added in the present invention.

**Claim rejections 35 USC § 112**

Claims 1-6, 10-16 and 46-52 were rejected under 35 USC §112, second paragraph as the recitation "elevated temperature" was asserted to render that claim and its dependents indefinite. Applicant has amended Claim 1 to recite "from 90-155° C". Applicant submits that the claim now particularly points out and distinctly claims the subject matter which Applicant regards as the invention. Applicant requests that the 35 USC §112 rejection be withdrawn.

**Claim rejections 35 USC §102/103**

Claims 46-52 were rejected under 35 USC §102 as being anticipated by or, in the alternative 35 USC §103 (a) as obvious over "Factors Affecting the Economics of Glucose Production," Delivering Innovation through Biotechnology", Genencor International, Inc. (1998) ("Shetty"). Applicant respectfully requests that the rejection be withdrawn. Shetty describes the application of alpha amylases from *Bacillus licheniformis* (Spezyme AA and GC521). Claims 46-51 depend from claims 1 and/or 17, 33, 43, 44, or 45. Claims 1, 17, 33, 43, 44, and or 45 recites "culturing *Bacillus*

*acidocardarius* with an aqueous slurry or solution". Applicant therefore requests that the rejection under 35 USC §102 be withdrawn.

Alternatively, Claims 48-52 were rejected under 35 USC §103. Applicant submits that the Examiner has not established a prima facie case of obviousness. Applicant submits that there is no suggestion nor motivation to modify the reference or to combine reference teachings. There is no hint or suggestion in Sheety to utilize a *Bacillus acidocardius* alpha amylase. Applicant also submits that there is no reasonable expectation of success. Applicant submits that Example 1 of the present application depicts the use of *Bacillus licheniformis* derived alpha amylases (an amylase sold under the brandname SPEZYME FRED L ) and a *Bacillus stearotheromphilus* derived alpha amylase (an amylase sold under the brand name TERMAMYL SC), and the *Bacillus acidocaldarius* (KSTM #2037) under the same environmental conditions. Only the use of the *B. acidocaldarius* provided the desired DE level within 60 to 75 minutes after the application of the same conditions to the various *Bacillus* alpha amylases (page 12, lines 24-30; and Fig. 4). Applicant submits that the inability to produce the liquefact with the desired DE levels is not an expected nominal difference. Applicants submit that in view of Example 1, there is no reasonable expectation of achieving the desired DE levels within the recited time frames.

#### **Claim rejection 35 USC § 103**

Claims 1-52 were rejected under 35 USC §103 as being unpatentable over Shetty in view of JP10-136979. Applicant respectfully requests that the rejection be withdrawn. There is no hint or suggestion that the useful in attaining DE levels of 10-12 within 60-75minutes. Applicant also submits that KSTM 2037 is described as "stable for 15 minutes in the pH range of 4.5 to 5.0 under heating at 90° C for 15 minutes". The optimal temperature for KSTM is described as being between 80-90° C. Thus in addition to not suggesting the use of the enzyme in the recited 90-155° range, the reference itself teaches away from the use of the KSTM 2037 enzyme in a 90-155° C environment for 60 – 75 minutes. Applicant also submits that there is no hint or suggestion that the enzyme would provide the desired DE levels within the 60 to 75 minute time frame described in the present invention. Applicant respectfully

requests that the 35 USC 103 rejection over Shetty in view of JP 10-136979 be withdrawn.

### **Double Patenting**

Claims 1-52 were provisionally rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over Claims 1-11 of copending application no 10/026,288. Applicants respectfully request that the rejection be withdrawn. The purpose of the double patenting obviousness type rejection is to prevent the extension of the term of the patent, by prohibiting the issuance of claims in a second patent that are not patentably distinct from those in the first patent. This is so the public can, upon expiration of the first patent be free to practice obvious claimed variations of the invention. However, Applicants submit that since the applications were filed on the same day, December 12, 2001, and after June 8, 1995, neither of the patents in question would extend beyond 20 years from the date of filing (MPEP Section 2701).

Furthermore, Applicant submits that the scope and/or encompassment of the claims relative to one another may change during the prosecution of the claims of the present application and those of the copending application Ser. No. 10/026,288. Therefore Applicants request that the rejection be withdrawn or in the alternative be postponed until the claim language is determined.

### **Conclusion**

Applicants respectfully request entry of the above amendment. Applicants submit that no new matter arises from the present amendment. Applicants submit that the claims as presently presented render moot the rejections under 35 USC 112, second paragraph; 35 102, 35 USC 103 and the provisional double patenting rejection. In

view of the above amendments and comments, Applicants respectfully request that the rejections based on 35 USC §112, second paragraph; 35 §102, 35 USC §103 and the provisional double patenting be withdrawn.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Richard T. Ito", written over a horizontal line.

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